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Korea, Republic of

Fresh Deciduous Fruit

Apple Situation & Outlook

2009

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Report Highlights:

The apple is one of the most widely consumed fruits in Korea, particularly the Fuji variety. Although apple imports are banned, the Korean apple industry is facing growing competition from other imported and local fruits. A phytosanitary protocol will need to be reached before imports of U.S. apples can begin. Consumers would likely prefer U.S. apples that have similar qualities as the locally grown Fuji, which is sweet, juicy and crisp. The KORUS FTA will open opportunities for U.S. apples as the 45 percent duty is lowered on non-Fuji varieties in ten equal annual reductions.

Includes PSD Changes: No
Includes Trade Matrix: No
Annual Report
Seoul [KS1]
[KS]

Production

South Korea apple producers are not directly competing with foreign apples since imports are prohibited due to phytosanitary concerns. Nonetheless, local producers are confronted with rising competition from imported fruits such as pineapples, grapes and bananas and other locally grown fruit, including pears, persimmons and tangerines. The increasing availability of imported fruits combined with competition from other domestic fruits pushed local apple production down nearly 40 percent from record levels in the mid 1990s. How the local apple industry responds to this type of competition, which will likely only become tougher in the future, will determine its future viability.

In 1995, planted area reached a record of 50,000 hectares. However, planted area has since fallen to 30,000 hectares, down nearly 40 percent in just five years (1995-2000) as consumer demand for other fresh fruits has begun to take off. The decline in area planted is also attributed to retiring growers who have sold their orchards only to see them plowed under for rice or other crop production. Area planted has held steady in recent years at 30,000 hectares as local apple prices have remained relatively stable.

Since 2000 apple production has increased steadily as growers have started using more modern growing techniques and chemicals to ward off unwanted pests. 2008 apple production, which reached nearly 480,000 metric tons, was higher than expected due to favorable weather conditions during the growing season. Local production of persimmons, pears and tangerines also increased during this period because of the good weather, which will in turn put downward pressure on apple prices. In 2009, production is expected to return to more normal levels and is estimated at 450,000 metric tons.

There are four main apple varieties in Korea. Fuji is the most widely produced apple variety accounting for nearly 70 percent of total area planted, followed by Hongro (8 percent), Tsuaru (8 percent), and Kogetsu (2 percent). Strong consumer demand for the Fuji variety apple has discouraged farmers from planting other apple varieties.

| Korea: Fresh Apple Production | | | | | | | | |
|-------------------------------|---------|---------|---------|---------|---------|---------|---------|---------------------|
| | 1990 | 1995 | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Cultivation Area (ha) | 48,833 | 50,103 | 29,063 | 26,907 | 28,312 | 29,358 | 30,000 | 30,000 ¹ |
| Adult Tree Area (ha) | 26,200 | 32,222 | 21,259 | 16,379 | 17,888 | 18,796 | 18,534 | NA |
| Production (1,000 mt) | 628,947 | 715,982 | 488,960 | 367,517 | 407,621 | 435,686 | 479,000 | 450,000 |

Source: Korea Agro-Fisheries Trade Corporation Korean Agricultural Trade Information (aT), Korea National Statistical Office (KNSO)

1/ Korea Rural Economic Institute (KREI)

Consumption

As Korean consumers have become more wealthy and well-traveled over the last two decades, they have developed a taste for imported fruits such as pineapples, grapes and bananas. Consequently, annual per capita apple consumption has softened in recent years, but appears to have now leveled off somewhere between 8.5 and 9.5 kilograms. Consumption in 2009 is forecast within this range at 9.2 kilograms since the 2009 apple crop production is expected to return to more normal levels.

Korean consumers are really only familiar with the Fuji variety apple since imports are prohibited. Consequently, given the limited exposure to other apple varieties, consumers

have grown accustomed to the sweet tasting Fuji apple, which has a brix ranging from 13~16Bx. The sweet Fuji apple is sometimes served at the end of a meal as desert. Of the other two main apple varieties produced in Korea, the Hongro has a brix of 15, and the Tsauru variety has a brix of 13.5~14.5.

Korean consumers prefer their apples firm and juicy like the Fuji variety. Consumers also expect freshness since apples are on store shelves within days after picking and are not generally stored for sale during the off-season. Imported apples with similar levels of sweetness would likely do well in the Korean market. Sour apples may also do well too based on consumers taste for locally grown tangy tangerines.

About 75 percent of apples are sold through wholesale markets, according to the one local industry source. A smaller percentage is sold directly to retail outlets. Apples are also sold out of the back of small delivery trucks that make their rounds in the more urban areas of the country. Apples are also sold at roadside stands located near the apple producing regions in the country. The lower quality apples are not held back for juice since it is cheaper to import concentrate from foreign suppliers. Very few locally produced apples are dried for use as an ingredient in products such as trail mix. More on the market for dried apples is available in the Dried Fruit Market Brief ([KS8017](#)).

Boxes of Fuji apples are a very popular, expensive gift given during Chusok (Sep/Oct) and Lunar New Year (Jan/Feb) holidays. In 2006, the average price was nearly 5,600 won/kg. This year, however, the average price was about 3,500 won/kg since the larger harvest put downward pressure on prices.

| Korea: Fresh Apple Consumption | | | | | | | | |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|------|
| | 1990 | 1995 | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Consumption (metric tons) | 155,171 | 175,546 | 315,444 | 364,350 | 414,310 | 444,297 | 445,876 | NA |
| Per Capita (kg) | 14.5 | 15.8 | 10.4 | 7.6 | 8.4 | 8.9 | 9.6 | 9.2 |

Source: Korea Rural Economic Institute (KREI)

Note: Consumption data= production + imports - exports

Trade

Only a small fraction of production is exported, 90 percent of which goes to Taiwan and a small fraction to Russia. Exports are limited in large part due to prices, which remain high despite growing competition from imported and domestic fruits. Local prices are three times higher than prices paid in the United States, according to a price analysis done by the Korea Agro-Fisheries Trade Corporation (aT).

The aT study showed that imported U.S. apples would sell for 1,700 won/kg, less than half the price for locally grown apples selling for nearly 5,000 won/kg. aT estimated that the price of U.S. apples would fall even further to about 1,300 won/kg under when shipments become duty free under the FTA. This analysis in part explains why the Korean apple industry has been so reluctant to embrace foreign competition. However, as noted in the KREI report referenced below, the competition resulting from the resumption of U.S. apple imports under the KORUS FTA, will not impact local apple production.

With the exception of Japan, no other country has been able to ship apples to Korea in recent history. Japanese apple shipments, however, were stopped in 2002 because of two phytosanitary concerns– Mediterranean fruit fly (*Ceratitis capitata*) and codling moth (*Cydia*

Pomonella). U.S. apple shipments are also barred due to phytosanitary reasons as explained below.

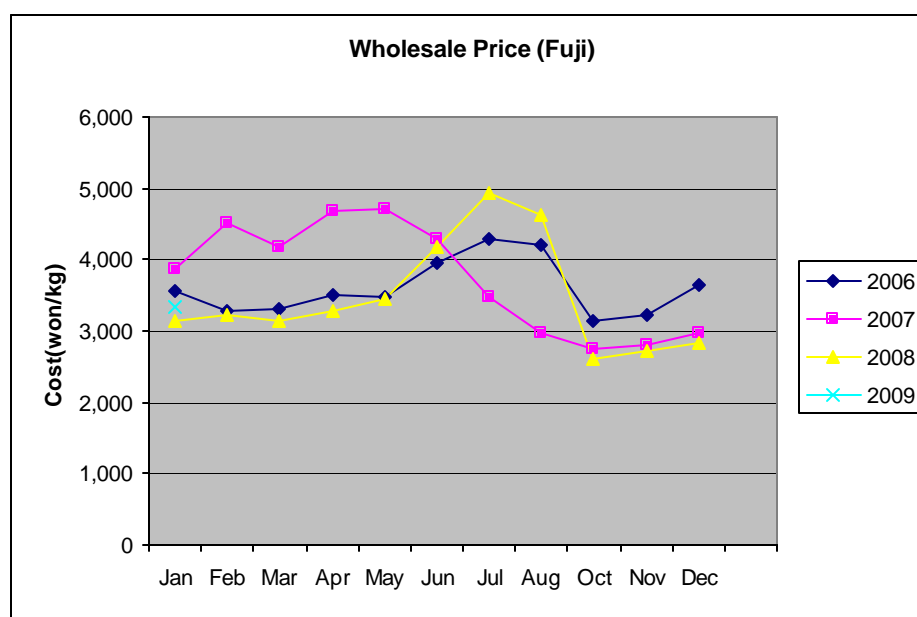
| Korea: Fresh Apple Trade (1,000 MT) | | | | | | | |
|-------------------------------------|-------|-------|-------|-------|-------|-------|---------|
| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 a/ |
| Imports | 18 | - | - | - | - | - | - |
| Exports | 7,836 | 4,690 | 2,641 | 3,167 | 1,011 | 1,329 | 3,174 |

a/ Jan-Nov

| Korea: Fresh Apple Price Comparison (Sep 2007) | | | |
|--|--------------|-----------------|----------------------|
| | Korean Apple | U.S. Apple 1/ | Duty-free U.S. Apple |
| Fresh apple | 4,899Kwon/Kg | 1,700Kwon/Kg 1/ | 1,289Kwon/Kg |

Source: Korea Agro-Fisheries Trade Corporation (aT)

1/ Price includes: Cost Insurance and Freight (CIF), import 45% tariffs, fees and 10% profit



Source: Korea Agricultural Marketing Information Service (aT KAMIS)

Note: No reported Fuji sales in September 2006~2008

Korea – U.S. Free Trade Agreement

Under the Korea-US FTA, the existing 45% tariff on apples, excluding Fuji variety apples, will be reduced to zero in 10 equal annual reductions. The import tariff on Fuji apples will be phased out in 20 equal annual reductions.

The agreement also establishes a 9,000-ton safeguard that increases to 12,000 tons in year 5, and thereafter grows 3 percent compounded annually through year 22. The safeguard duty trigger level includes the total quantity of all varieties of imported apples. In year 11 and each year thereafter through year 23, the safeguard duty may only be applied to Fuji apples.

The Korea Rural Economic Institute (KREI) has analyzed the potential impact of the agreement on domestic production. The analysis assumes that FTA will be implemented in 2010 and that the outstanding phytosanitary concerns for U.S. apples will be resolved. With these assumptions in mind, imports are expected to reach 2,500 tons in 2015 and then climb to nearly 10,000 tons in 2019. In comparing these projections against the baseline, or the status quo, the FTA will have little, if any, impact on domestic apple production.

| KORUS FTA Impact on Domestic Apple Production | | | | | | | |
|---|-----------|------|------|----------|----------|----------|----------|
| | Unit | 2008 | 2009 | 2015 | | 2019 | |
| | | | | Baseline | Scenario | Baseline | Scenario |
| Cultivation area | 1,000 ha | 30.0 | 30.3 | 29.8 | 29.8 | 28.0 | 26.1 |
| Production | 1,000 ton | 471 | 452 | 468 | 468 | 458 | 457 |
| Imports | 1,000 ton | - | - | - | 2.5 | - | 9.7 |
| Per capita consumption | Kg | 9.6 | 9.2 | 9.4 | 9.5 | 9.2 | 9.4 |

Source: Korea Rural Economic Institute (KREI)

Market Access Issues

The Ministry for Food, Agriculture, Forestry and Fisheries' (MFAFF) National Plant Quarantine Service (NPQS) is responsible for preventing the introduction of harmful weeds, pests and diseases originating from imported plants, fruits and vegetables. U.S. apple imports are prohibited because of phytosanitary concerns. Before shipments of U.S. apples could begin, MFAFF and USDA would need to develop an import protocol to address the relevant concerns, among which might include pests such as apple maggot, cherry fruit worm, lesser apple worm and black rot.

The Korea Food and Drug Administration (KFDA) establishes and enforces MRL standards. CODEX values are the principal default levels when no KFDA MRLs have been established. This means that other tolerance levels, such as CODEX, etc., are not accepted when an MRL is established for a given pesticide in the Korean Food Code. In the absence of CODEX standards, then MRLs set for a similar crop group shall apply.

KFDA will test the first shipment from each U.S. supplier for pesticide residues. Once it passes the KFDA inspection, subsequent shipments from the same supplier will not be subject to mandatory laboratory inspections. A list of the most current MRLs for apples follows.

All imported agricultural products are required to be labeled with the product name, producer name, manufacture date (packing date or packing year), net quantity of contents, and storage and handling instructions on the Korean language. Country of origin labeling is required on the shipping boxes (i.e. carton), but is not required on individual pieces of fruit.

Korean MRL Standards for Apples

| Pesticide | PPM | Pesticide | PPM | Pesticide | PPM |
|--------------------------------|------|-------------------------------|------|---------------------|------|
| 2,4-Dichlorophenoxyacetic acid | 2.0 | Ethephon | 5.0 | Omethoate | 0.4 |
| Abamectin | 0.02 | Ethionfencarb | 5.0 | Oryzalin | 0.05 |
| Acephate | 5.0 | Ethofenprox | 1.0 | Oxamyl | 2.0 |
| Acequinocyl | 0.5 | Ethoxyquin | 3.0 | Oxyfluorfen | 0.05 |
| Acetamiprid | 0.3 | Ethylene(bisdithiocarbamate)s | 2.0 | Paclobutrazo | 0.5 |
| Acibenzolar-S-methyl | 0.2 | Etoxazole | 0.5 | Parathion | 0.3 |
| Acrinathrin | 0.5 | Etrinfos | 0.2 | Parathion-methyl | 0.2 |
| Alanycarb | 0.5 | Fenamiphos | 0.2 | Penconazole | 0.2 |
| Aldrin & Dieldrin | 0.01 | Dinocap | 0.1 | Pendimethalin | 0.05 |
| Amitraz | 0.5 | Dinotefuran | 0.5 | Permethrin | 0.05 |
| Azinphos-methyl | 1.0 | Fenarimol | 0.3 | Phenthoate | 0.2 |
| Azoxystrobin | 0.5 | Fenazaquin | 0.1 | Phosalone | 5.0 |
| Bendiocarb | 0.02 | Fenbuconazole | 2.0 | Phosmet | 10.0 |
| Benfuracarb | 0.2 | Fenbutatin oxide | 5.0 | Phosphamidone | 0.5 |
| Bensultap | 0.7 | Fentexamid | 1.0 | Pirimicarb | 1.0 |
| Benzoximate | 0.5 | Fenitrothion | 0.5 | Pirimiphos-methyl | 2.0 |
| 6-Benzyl aminopurine | 0.1 | Fenoxycarb | 0.5 | Prochloraz | 0.5 |
| BHC | 0.2 | Fenpropathrin | 5.0 | Procymidone | 5.0 |
| Bifenazate | 1.0 | Fenpyroximate | 0.5 | Profenofos | 2.0 |
| Bifenthrin | 0.5 | Fenthion | 0.2 | Propargite | 5.0 |
| Bitertanol | 0.6 | Fenvalerate | 2.0 | Propineb | 1.0 |
| Boscalid | 0.5 | Flonicamid | 0.7 | Propoxur | 3.0 |
| Bromopropylate | 5.0 | Fluacrypyrim | 1.0 | Prothiofos | 0.05 |
| Captafol | 5.0 | Fluazinam | 0.3 | Pyraclostrobin | 0.2 |
| Captan | 5.0 | Flucythrinate | 0.5 | Pyraflufen-ethyl | 0.1 |
| Carbaryl(NAC) | 1.0 | Flufenoxuron | 0.7 | Pyrazophos | 1.0 |
| Carbendazim | 2.0 | Flumioxazine | 0.1 | Pyrethrins | 1.0 |
| Carbofuran | 0.5 | Fluquinconazole | 0.3 | Pyridaben | 1.0 |
| Carbosulfan | 0.1 | Fluroxypyr | 0.1 | Pyridaphenthion | 0.1 |
| Carfentrazone-ethyl | 0.1 | Flusilazole | 0.2 | Pyrimethanil | 2.0 |
| Chinomethionat | 0.2 | Fluvalirate | 0.5 | Pyrimidifen | 0.2 |
| Chlorfluazuron | 0.2 | Folpet | 5.0 | Sethoxydim | 1.0 |
| Chlorobenzilate | 2.0 | Fosetyl-aluminium | 25.0 | Simazine | 0.25 |
| Chlorothalonil | 2.0 | Furathiocarb | 0.5 | Simeconazole | 0.3 |
| Chlorpenapyr | 0.5 | Glufosinate -ammonium | 0.3 | Spirodiclofen | 1.0 |
| Chlorpropham | 0.05 | Glyphosate | 0.2 | Spiromesifen | 0.5 |
| Chlorpyrifos | 1.0 | Hexaconazole | 0.1 | Tebuconazol | 0.5 |
| Clofentezine | 1.0 | Hexaflumuron | 0.5 | Tebufozoxide | 0.7 |
| Clothianidin | 1.0 | Hexythiazos | 0.3 | Tebufoenpyrad | 0.5 |
| Cyfluthrin | 0.5 | Imazalil | 5.0 | Teflubenzuron | 1.0 |
| Cyflufenamid | 0.2 | Imibenconazole | 0.3 | Terbutylazine | 0.1 |
| Cyflumetofen | 0.3 | Imidacloprid | 0.5 | Tetradifon | 3.0 |
| Cyhalothrin | 0.2 | Iminoctadine | 0.3 | Thiabendazole | 10.0 |
| Cyhexatin | 2.0 | Indoxacarb | 0.1 | Thiacloprid | 0.3 |
| Cypermethrin | 2.0 | Iprodione | 10.0 | Thiamethoxam | 0.3 |

| | | | | | |
|------------------|------|---------------------------|------|------------------|------|
| Cyproconazole | 0.1 | Isoprothiolane | 0.05 | Thiodicarb | 2.0 |
| Cyprodinil | 1.0 | Kresozim-methyl | 2.0 | Thiometon | 0.5 |
| Daminozide | N.D. | Lufenuron | 0.3 | Thiram | 0.3 |
| Diniconazole | 1.0 | Malathion | 0.5 | Tolclofos-methyl | 0.05 |
| DDT | 0.2 | Maleic hydrazide | 40.0 | Tolyfluanid | 5.0 |
| Deltamethrin | 0.2 | Mepanipirim | 0.5 | Tralomethrin | 0.5 |
| Diafenthiuron | 0.5 | Metalaxyl | 0.05 | Triadimefon | 0.5 |
| Diazinon | 0.5 | Metconazole | 1.0 | Triadimenol | 0.5 |
| Dichlobenil | 0.15 | Methidathion | 0.3 | Triazamate | 0.1 |
| Dichlofluanid | 5.0 | Methomyl | 1.0 | Triazophos | 0.2 |
| Dichlorprop | 0.05 | Methoxychlor | 14.0 | Trichlorfon | 2.0 |
| Dichlorvos(DDVP) | 0.1 | Methoxyfenozide | 1.0 | Triflumizole | 2.0 |
| Dicofol | 2.0 | Methyl bromide(as Br ion) | 20.0 | Triflumuron | 0.5 |
| Difenoconazole | 1.0 | Mevinphos | 0.5 | Trifloxystrobin | 0.5 |
| Diflubenzuron | 1.0 | Milbemectin | 0.1 | | |
| Dimethoate | 1.0 | Monocrotophos | 1.0 | Triforine | 2.0 |
| Diphenamid | 0.1 | Mychlobutanil | 0.5 | Vamidothion | 1.0 |
| Diphenylamine | 5.0 | Napropamide | 0.1 | Vinclozolin | 1.0 |
| Dithianon | 5.0 | Norflurazon | 0.1 | | |
| Dodine | 5.0 | Novaluron | 1.0 | | |
| Endrin | 0.01 | Nuarimol | 0.1 | | |
| EPN | 0.2 | O-phenylphenol | 10.0 | | |

Source: Korea Food and Drug Administration (KFDA)

U.S. Agricultural Trade Office

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For further information about sanitary and phytosanitary requirements, please contact:

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For more information about the Korean market, please review the Exporter's Guide (KS7063) at <http://www.fas.usda.gov/gainfiles/200710/146292610.pdf> and the FAIRS Country Report (7053) at <http://www.fas.usda.gov/gainfiles/200708/146291900.pdf>. More Korea specific reports can be found at <http://www.fas.usda.gov/scripts/AttacheRep/default.asp>.

General information about the Korean Market can be found on the Agricultural Trade Office Website at <http://www.atoseoul.com/> or about the Foreign Agricultural Service at <http://www.fas.usda.gov/>